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NEW AMERICAN SYRPHID FLIES (DIPTERA)

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Descriptions of three new species of flower-flies (Syrphidae) are given in this paper, and I am indebted to Dr. C. H. Curran for the privilege of studying and describing them. The types are in The American Museum of Natural History.

Mixogaster strictor, new species

Large, petiolate, brown species without obvious mesonotal vittae or fascia; wings with a brown anterior border and subapical cross-vein with an outwardly directed spur beginning above the middle of the cross-vein. Related to the *conopsoides* Macquart group but with different thorax, etc.

MALE.—Length 9 mm. to where the abdomen is deflected downward at the end of second segment, remaining three segments 4 mm. long. Wing 9 mm.

HEAD: considerably wider than thorax, the occiput dark brown. There is a very dark brown transverse band across the front from eye to eye, which is confluent with a similar area on the upper edge of the antennal prominence and upon all of the region of the vertex and ocellar triangle except the area just back of the ocelli. Just back of the ocelli the rounded swollen area is dark reddish. There is a narrow transverse band from eye to eye on the upper part of the front, just below ocellar triangle, which is light brownish yellow and slightly reddish. Face very convex viewed from above; straight in profile for the greater part of its length or height and receding gently on the lower third. Cheeks absent in profile. Face light yellow-brown with a slender median brown stripe and a more slender, slightly curved stripe on the middle of each side of the face that grows wider as it reaches the epistoma. All three stripes proceed from the base of the antennae and the outer stripes are curved outwardly, convex. Eyes bare, widely separated by four-fifths of the eye width. Antennae elongate, the first joint nearly as long as the other two, the second joint two-fifths as long as the third joint and very narrow at its base from which it quickly flares out over its short length. Arista much thickened basally, not as long as the third joint. THORAX: convex, a little longer than wide, the dorsum entirely dark, dull shining brown,

with extremely short-appressed, reddish, bristly pile, and without obvious stripe on the dorsum anywhere. The narrow sides of the thorax from and including the humeri, the post calli and the entire scutellum light yellow. Scutellum very short and convex. Metanotum conspicuous and brown. ABDOMEN: elongate and pedunculate, the second segment narrowest at about a fourth the distance from its base. The length of the second segment is about three and a half times its narrowest width, four times as long as at its narrowest width and on its posterior margin it is at least one and a half times as wide as the narrowest width. The remainder of the abdomen consisting of the third and fourth segments and conspicuous hypopygium are enlarged into a club-shaped body which is thrust downward at a right angle. First and second segments light reddish brown, shining, a little bit darker upon the first segment and on either side of the second segment past the middle. The margins of the second segment are deeply creased and the extreme tip of this segment is almost yellow. The remaining segments are dark brown, quite densely appressed setate, the hind border of the third segment and a narrower border upon the posterior part of the fourth segment brownish yellow. LEGS: dark brown, the basal two-thirds of all of the femora light brownish yellow. WINGS: with the anterior border very pale gray and perhaps teneral, though there is no indication of it elsewhere. Veins brown, wings villose, stigmal cell pale. A stigmal cross-vein is present; the spurious vein is a mere fold.

HOLOTYPE.—One male, Piedra, Brazil, April, Williston Collection.

Lepidostola stellata, new species

Front with a radiate patch of golden scales just below the ocelli; mesonotal scales largely concentrated upon the posterior half; fourth abdominal segment sparsely scalose; legs chiefly brownish yellow. Related to *abdominalis* Lw., but scales sparse.

FEMALE.—Length 6 mm.; wing 5.6 mm.; antennae 1.7 mm.

HEAD: short and flat, wider than thorax, the eyes especially conspicuous. The vertex rather protuberant, shining black, the front slightly concave, though the region in front of the antennae is a little convex. The broad

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central concavity or shallow part of the widening front is set with yellow scales, which radiate out from a central point. There is upon the lower part of the front, upon the eye margins a small, semicircular, white-pubescent spot. There is a larger similar spot upon the eye margins just opposite the antennae; it is narrowly connected below with a large vertical band of such pubescence lying upon the lower eye margins which is directed as a narrowing wedge down the sides of the face almost to the epistoma. Vertex, face, front and cheeks shining black. There is a small tubercle on the face just above the middle. Antennae quite elongate, the first two joints sub-equal in length, the third joint more than half again as long as the first two. The pendent antennae descend well below the base of the head or epistoma. The arista is slender. The eyes, if viewed from above, are much produced beyond the edge of the occiput laterally. THORAX: densely covered with yellow scales which are much more thickly set upon the posterior half of the thorax. There are a few on the posterior half of the humeri. The scales upon the mesopleurae are white. Scutellum shining black with no trace of scales, quite acutely triangular, the apex of the scutellum rather sharp, without being acute. ABDOMEN: broad, flattened, rather shining black with a very few scales only, narrowly on the sides of the third segment, and the whole of the fourth segment uniformly and sparsely covered with scales which are golden. LEGS: entirely pale brownish yellow or orange, except that the outer half of the hind femora is barely darker and there is a quite narrow, not sharp, apical annulus of brown on all femora, except the middle pair, and a ventral streak of brown on the fore tibiae. The spines on the hind femora on either side are of a single row and are black as are the setae upon the base of the hind tibiae. WINGS: villose, the veins in the middle of the wing before the stigma very dark brown, almost black. Stigmal cell pale yellow, vena spuria practically absent, there being no more than a trace of a fold evident.

HOLOTYPE.—One female, São Paulo, Brazil.

There is in addition a male specimen in bad condition. The apical two-fifths of the hind femora of this specimen is dark brown; it bears the number 641.

Lepidostola trilineata, new species

Terminal part of abdomen with three vittae of thick, golden scales; anterior margin and suture of mesonotum thinly marginate with golden scales, and some lying before the scutellum. Not closely related to any now known species; the scutellum simple.

MALE.—LENGTH 5 mm. to end of second segment, remaining segment 2.5 mm. long; wing 5.6 mm.; antennae 2 mm. long.

HEAD: quite flat, wider than thorax, the vertical triangle small, with some golden scales behind the ocelli which are placed upon a low protuberance. Eyes touching for a distance equal the width by which the ocelli are separated. Sides of front along the eye margins densely golden scalose and the sides of the eyes along the face, beginning opposite the antennae, covered by two large, somewhat semicircular spots of golden, quite microscopic pubescence that are more or less joined in to each other. There is also a median band of similar pubescence that begins just below the antennae, divides above the tubercle of the face and continues down the side of the face, merging with the lower of the two eye marginal spots. Epistoma fairly prominent, almost as far thrust forward as the tubercle. Cheeks brown and face and front, where not pubescent, shining black with somewhat of a steely blue cast. Antennae quite elongate, the second joint a little longer than the first and the third joint about as long as the second. First joint brownish yellow, the remaining two dark grayish brown. Third joint much flattened. Arista very slender. THORAX: the dorsum of the thorax dull black, with a pair of median gray vittae set close together, joined in the center as an H, but the posterior ends evanescent on the posterior fourth of the dorsum. There is a broad transverse anterior band of golden scales that becomes quite narrow as it borders the humeri and is continued down upon the mesopleurae as a sharp band of white scales. There is a narrow band of golden scales on the posterior margin of the suture of the dorsum, stopping at the root of the wing and again at the end of the suture in the middle of the mesonotum which end is also the outer margin of the gray vittae. A third band, almost as narrow, of thick golden scales begins just anterior to the posterior calli and circles the posterior part of the dorsum just before the scutellum. The remainder of the dorsum of the mesonotum is densely beset with tuberculate, extremely short, black setae. Scutellum short, free of scales, light brownish. ABDOMEN: barely narrower at the base of the second segment than upon the remainder of the abdomen. The abdomen is a little wider upon the base of the third segment. Sides of third and fourth segment each a little convex, the hypopygium prominent. First and second segments pale reddish brown, darker brown over most of the interior and apex of the second segment, and the basal half or more of the third segment and the narrow margins and apex of the fourth segment similarly colored. Remainder of third and fourth segments black and opaque. Upon the sides of the third and fourth segments, just inside the convex light brown margins is a slender, continuous vittae of thick golden scales. There is a similar narrow median vittae on the fourth segment and a transverse posterior marginal band of similar thick scales upon the end of the third segment, which is a little wider in the middle. The remainder of the fourth segment and of the

third segment, except the basal third, sparsely, uniformly scalose. LEGS: dark brown; the hind femora, except a basal pale yellow annulus and an inner lateral apical elongate spot, dark blackish; the outer lateral surface of the front femora and the discal two-thirds of the front tibiae also blackish. The middle tarsi and the front two basi tarsi, the basal half of the front femora and the anterior basal part of the middle

femora, light yellow. Remainder of legs brown. Hind femora with on each side a double row of very prominent long, sharp black spines. The anterior and middle femora, on the outer lateral sides only, with a similar single row of black spines. WINGS: villose, pale grayish, stigmal cell yellow, vena spuria absent.

HOLOTYPE.—One male, Matto Grosso, Peru. It bears the number 347.

